Electronic Supplementary Material (ESI) for Analytical Methods.

Supporting Information

Characterisation of thin boron-doped diamond films using Raman spectroscopy and chemometrics

Peter Knittel,*[a] Robert Stach,[b] Taro Yoshikawa,[a] Lutz Kirste,[a] Boris Mizaikoff,[b] Christine Kranz,[b] Christoph E. Nebel[a]

Table 1 (as shown in the manuscript): Substrates grown for the calibration and validation of the PLSR model for determining thickness and boron concentration (Reference values obtained by SIMS). Substrate resistivity was measured with a 4-point probe. Roughness was obtained from AFM measurements.

ID	Thickness / nm	B concentration / 10^{20}·cm^{-3}	Substrate resistivity / Ω	Roughness RMS / nm
1	60	7.47	4	12.9
2	100	24.7	20	15.0
3	165	33.3	10	20.1
4	200	21.7	7	30.9
5	220	23.2	9	28.9
6	270	21.8	13	29.4
7	300	16.2	8	36.0
8	450	14.2	10	40.4
9	470	17.1	7.5	41.4
10	520	32.3	7	35.6
11	620	30.4	4	42.5
C1	90	18.9	0.02	16.2
C2	240	24.6	0.06	31.7
C3	245	30.7	0.09	30.8
C4	370	6.39	0.05	39.0

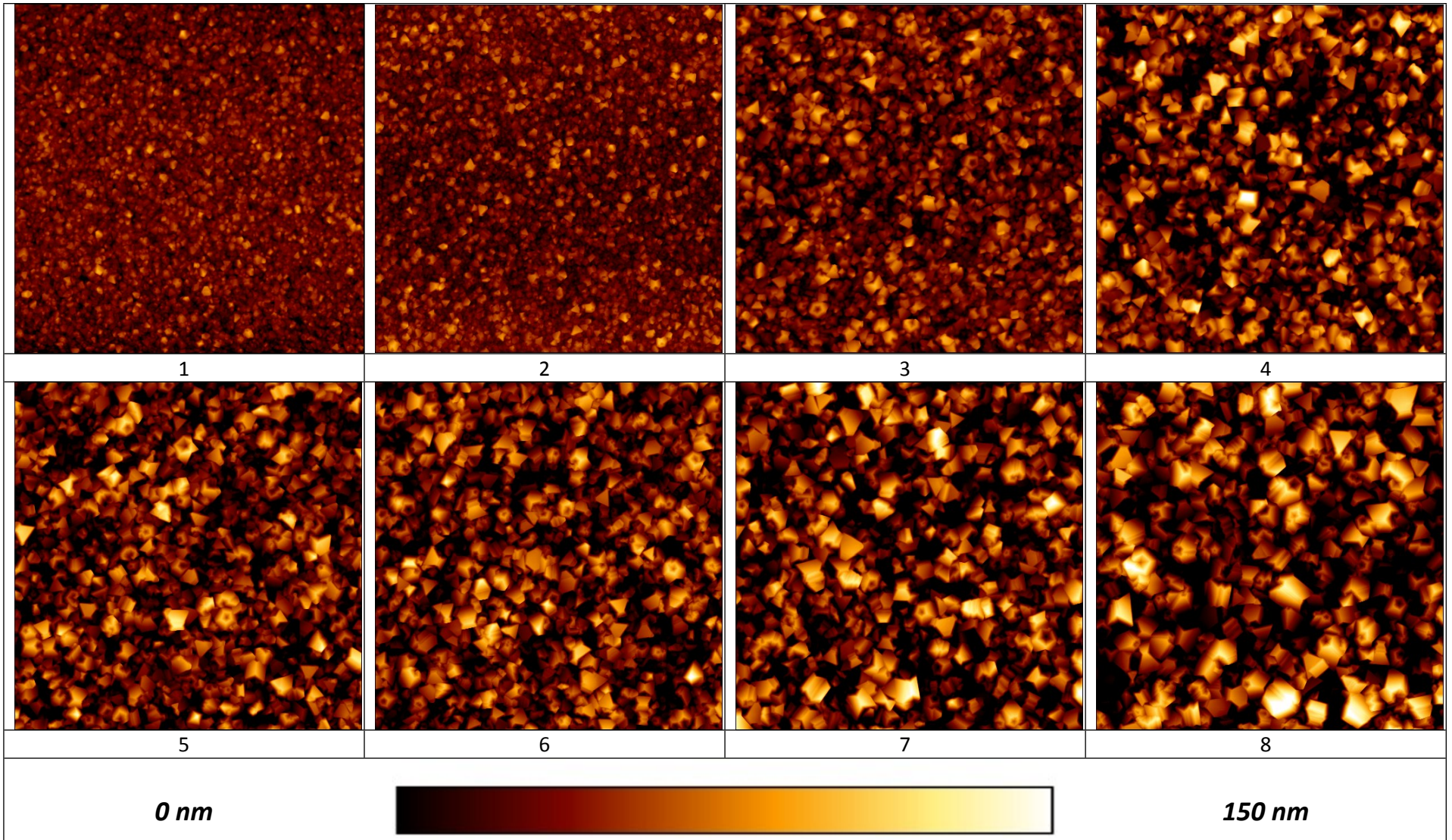

Fig. S1a: AFM measurements obtained on samples 1-8.

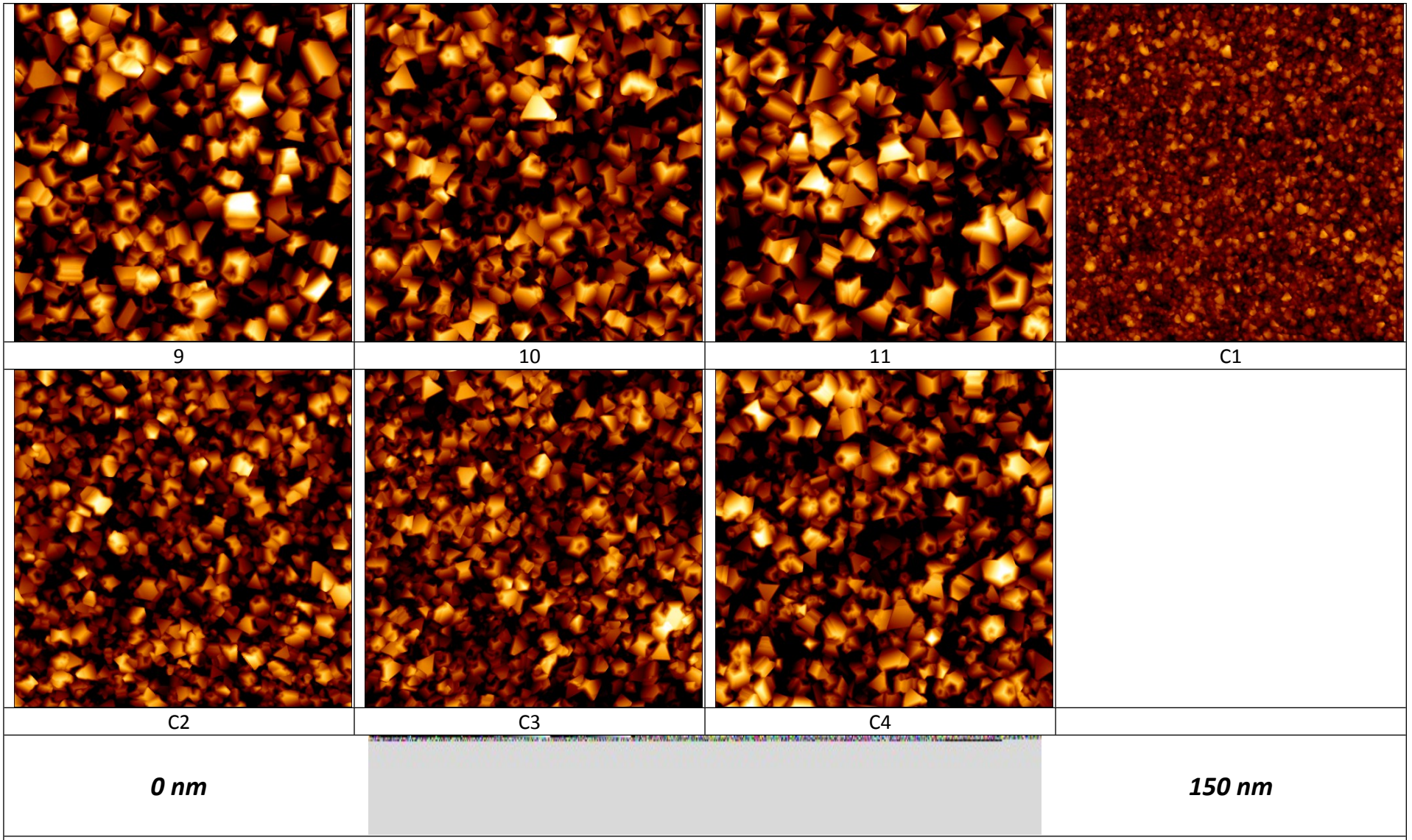

Fig. S1b: AFM measurements obtained on samples 9-11 and diamond layers on conductive substrates C1-C4.

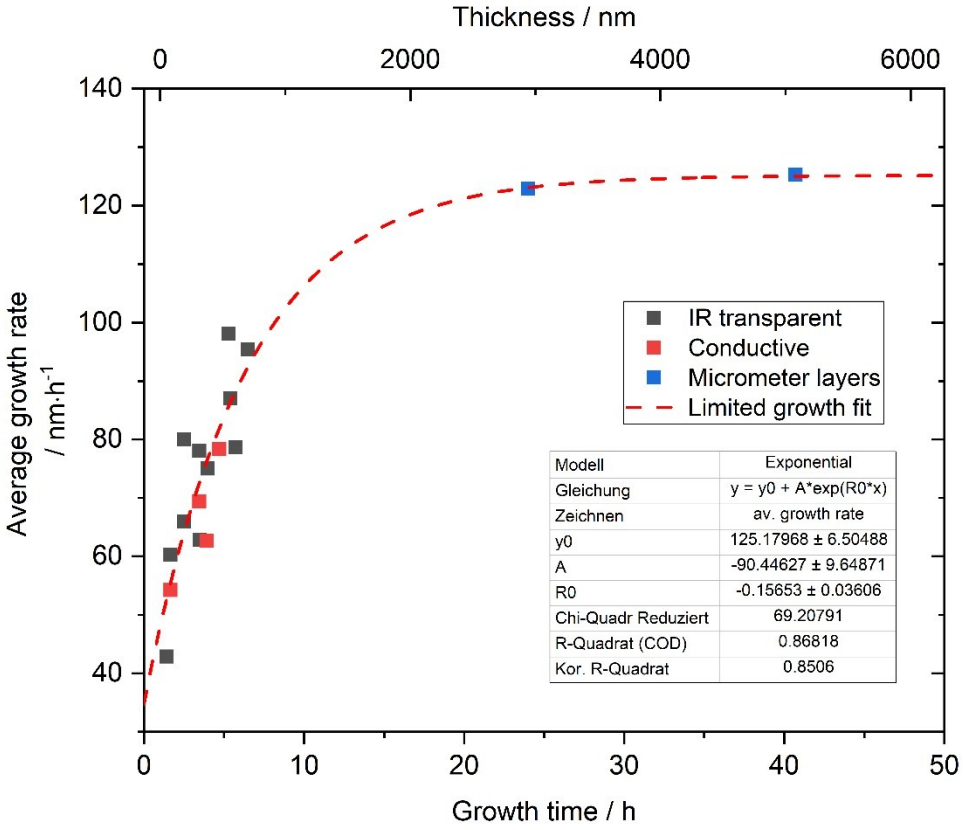

Fig. S2: Average growth rate vs. growth time and thickness of diamond films listed in Table 1 and 2. Films with micron-sized thickness were fitted with a limited-growth model.

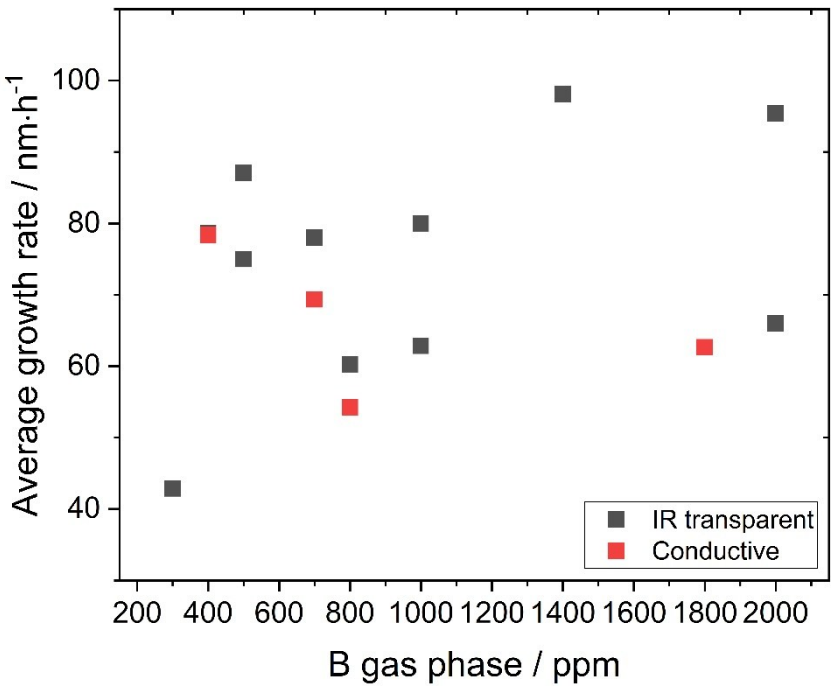

Fig. S3: Average growth rate vs. boron concentration in the gas phase during synthesis of diamond films described in Table 1.

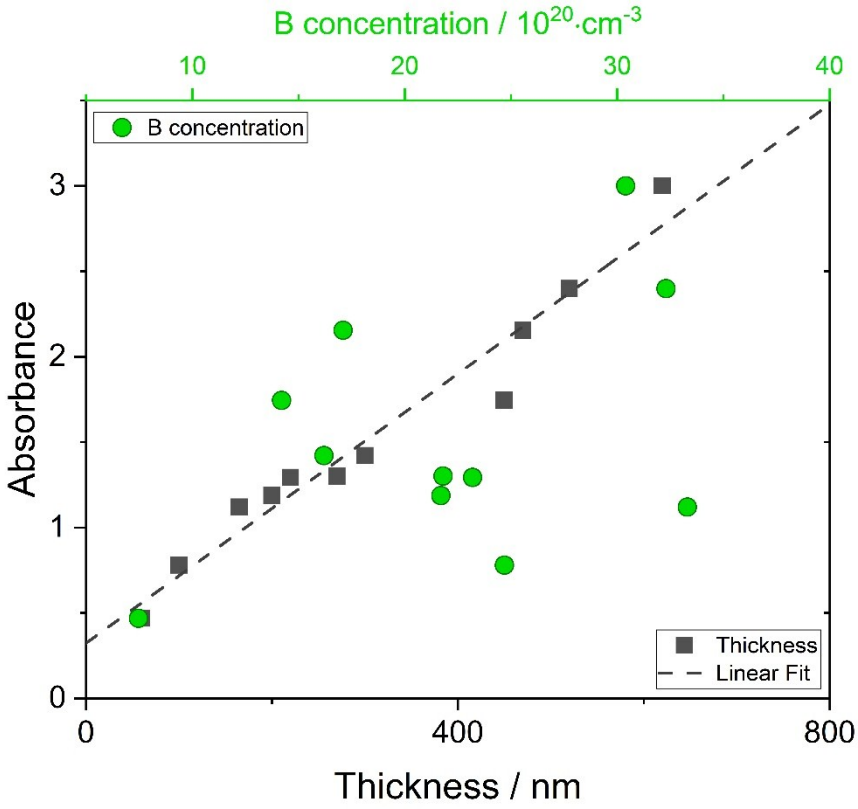

Fig. S4: IR absorbance (measured at 2750 cm^{-1}) vs. thickness and boron concentration of IR transparent samples 1-11.